said crystal grains joined with crystal grain boundaries of {111} twin of Diamond structure,

wherein said insulator is a glass substrate, said polycrystalline layer is a Si thin-film, said Si thin-film has a thickness of 10 to 150 nm, and said Si thin-film has a plurality of crystal grains having {110} planes parallel to the surface of said substrate.

B' cont.

7. (amended) A thin-film semiconductor device comprising an insulator, a polycrystalline layer formed on said insulator, and a transistor comprising a source region, a drain region, a gate region, and a channel region formed at the surface portion of said polycrystalline layer, said polycrystalline layer comprising crystal grains of an element selected from the group of Type-IV elements and their alloys, said crystal grains joined with crystal grain boundaries of {111} twin of Diamond structure,

wherein in said channel region, two to five crystal grains having the joints of said {111} twin have {110} planes parallel to the surface of said insulator, and have at least one structure coupled at one point on said polycrystalline layer.

B2

12. (Amended) A thin-film semiconductor device comprising an insulator, a semiconductor thin-film formed on said insulator and a transistor comprising a source region, a drain region, a channel region and a gate electrode formed at the surface of said semiconductor thin-film, said semiconductor thin-film having amorphous regions of Type-IV element and dendrite crystal regions of Type-IV element connecting said source region and said drain region,

wherein two to five grains having the joints of {111} twins have {110} planes parallel to the surface of said insulator and at least one structure coupled at one point on said dendrite crystals, in said channel region.

Please add the following new Claim 38:

--38. A semiconductor device comprising an insulator; a semiconductor layer having a plurality of semiconductor crystalline grains provided at the upper part of said insulator to have one main surface, said semiconductor crystalline grains having {110} planes to form said main surface, the interfaces of which are joined by {111} twin-boundaries; and a gate electrode covering said main surface of said semiconductor layer via an insulating film.--